

## **Course Syllabus CE 5350 Risk Management**

**Instructor:** Ghassan Khankarli, Ph.D., P.E, PMP

**Office Number:** NH 109

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**Office Hours:** Friday: 6:30-7:00 pm or by appointment

**Course Number, Section Number, and Course Title:** CE 5350, Sec 001/101 – RISK MANAGEMENT

**Time and Place of Class Meetings:** Friday 7:00-9:50 pm, Room NH 109

**Description of Course Content:** This course is designed to provide an overview for engineers and managers in the application of a risk management approach to scheduling and cost estimating of projects. Topics include: risk identification, response, monitoring and control through the use of good data input, systematic approach and quantitative evaluation analysis. Prerequisite: MATH 1308

**Course Objective:** The course objective is to prepare students to demonstrate sound engineering and managerial judgment in the application of an integrated qualitative and quantitative cost and schedule risk analysis to improve decision-making and optimize the use of available resources.

**Specific Course Learning Outcomes:** Upon completion of the course, the student will:

1. Understand general risk management principles
2. Understand the benefits of integrating risk into cost estimating and scheduling
3. Understand impact of costs and schedule risks on projects budgets
4. Understand the relevance of a good information management and decision support systems
5. Explore ways to quantitatively analyze and select optimal alternatives in response to identified risks
6. Understand the importance of communicating research results through class discussions, presentations, and reports

All outcomes are observed implicitly through class participation, exams, homework, reports and formal/informal communications with instructor.

**Requirements: SOFTWARE:**

Student should have a working knowledge of and access to Microsoft Word®, Microsoft Excel®, Microsoft PowerPoint®.

**Required Textbooks and Other Course Materials:**

- 1) Cooper, Dale, Pauline Bosnich, Stephen Grey, Grant Purdy, Geoffrey Raymond, Phil Walker, and Mike Wood. 2014. *Project Risk Management Guidelines-Managing Risk with ISO 31000 and IEC 62198, 2<sup>nd</sup> Edition*. John Wiley & Sons, Ltd., West Sussex, United Kingdom (ISBN 978-1-118-82031-5)

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- 2) Handouts, notes, reading assignments, problem solutions and other information are located on the class Blackboard site which will be provided by the instructor

### Referenced Textbooks

- 1) Project Management Institute. 2009. *Practice Standard for Project Risk Management Reporting and Asset Management*. Project Management Institute, Newtown Square, Pennsylvania (ISBN 978-1-933890-38-8)
- 2) Handouts

**Descriptions of major assignments and examinations with due dates:** Homework assignments, review of three peer-reviewed articles assignment, a research paper, presentation, one mid-term exam and a comprehensive final exam.

Hard copies of all assignments must be turned in at the start of the class. Distance learning students or advance special arrangements with the instructor for in-class students where assignments are submitted electronically, emails with attachments must be received prior to the start of the class period in which they are due. Failure to do so will constitute a grade of zero for the assignment in question.

One week of advanced notice will be provided in scheduling each exam. The final exam will be given according to the university's published final exams schedule. Note that failure to appear for an exam at the scheduled time will constitute a grade of zero in that exam.

Homework, articles review, and paper in this class are the minimum assignments considered adequate to achieve basic proficiency of course material. Homework will be discussed in class. When doing the homework, specify date, name, course, and problem number at top of each page. Each problem is to be started on a new page. Include at the beginning of the problem, the problem statement and any diagrams given as well as any additional diagram needed to solve the problem. Then show solution. If calculations are required, all calculations should show two (2) significant figures for intermediate values calculated. Final answer should be rounded to two (2) significant figures unless all data is greater than three (3) significant figures. Then use minimum number of significant figures dictated by problem (greater than 3). When establishing elevations or distances for design drawing, answers must be in hundreds of a foot or thousands of a meter.

The exams will generally relate to the material covered in the lectures or in assignments. The philosophy of the exam is not to merely test your total recall or memorization, but to extend your thinking from theory and example problems to engineering situations. Each exam may include both open and closed book portions.

See the "**Make-up Exam and Assignment Policy**" section for accommodations of incomplete or missed assignments.

**Attendance:** At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, [I have established following attendance policy:](#)

[I have elected to take attendance till Census Day but will not factor attendance into the grade.](#) "Students registered for **Section 001 (Class Number: 90694)** are expected to attend all classes. Students registered for **Section 101-Distance Learning (Class Number: 90695)** are expected to communicate with the instructor by email on a weekly basis. The email will cover

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the understanding or questions about the lectures covered during the week. Class participation and discussions are essential for full professional development

**Grading Policy:** Grades are based on two exams, four articles review (AR), assignments, group research paper, and attendance/presentation. Grades will be determined by averaging the exams and assignments as follows.

• Exams: 2 @ 34% each	68%
• Review and summary of peer-reviewed articles: 3 @ 3% Each	9%
• Class homework/ assignment(s) and class participation	3%
• Presentation 5%	5%
• Research paper will be weighted at 15%	<u>15%</u>
Total	100%

The presentation will cover the research topic. Proper spelling, use of clear and concise sentences on essay questions will also be considered in the grading process. Grade standards are as follows:  $100 \geq A \geq 90$ , Less than  $90 > B \geq 80$ , Less than  $80 > C \geq 70$ , Less than  $70 > D \geq 60$ , and Less than  $60 > F \geq 0$ . Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops

**Expectations for Out-of-Class Study:** Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional **6 hours** per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

**Grade Grievances:** Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. **For undergraduate courses, see <http://catalog.uta.edu/academicregulations/grades/#undergraduatetext>; for graduate courses, see <http://catalog.uta.edu/academicregulations/grades/#graduatetext>.**

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering.

**Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>)

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with

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Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** The University of Texas at Arlington is committed to upholding U.S. Federal Law “Title IX” such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX)

**Academic Integrity:** Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not

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required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, **which is located to the right center or left of the classroom**. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Writing Center. :** The Writing Center, 411 Central Library, offers individual 40 minute sessions to review assignments, *Quick Hits* (5-10 minute quick answers to questions), and workshops on grammar and specific writing projects. Visit <https://uta.mywconline.com/> to register and make appointments. For hours, information about the writing workshops we offer, scheduling a classroom visit, and descriptions of the services we offer undergraduates, graduate students, and faculty members, please visit our website at [www.uta.edu/owl/](http://www.uta.edu/owl/).

**Librarian:** Sylvia George-Williams, Engineering Librarian, UT Arlington Science & Engineering Library, NH B03C, (817) 272-7519, [sylvia@uta.edu](mailto:sylvia@uta.edu)

**Make-up Exam and Assignments Policy:** No make-up exams and assignments are given or accepted except for medical or other similar hardships where advanced arrangements are made with the instructor; or in case of non-selective medical emergencies with appropriate physician's note or documentation. Other than circumstances describe above, failure to take the exam or turn in assignments at the scheduled time will constitute a grade of zero in the exam and assignment. It is the student's obligation to contact the instructor, generally before the examination so that appropriate arrangement (if any) may be made.

**Emergency Phone Numbers:** In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911

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### General Information:

**Blackboard Site:** Handouts, notes, articles, and other information are located on Blackboard

*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. Adjustments **will be posted on***

**Blackboard.**

**Articles Review:** Articles will be posted on Blackboard and are due by the dates shown on the class schedule. The articles shall be two to three pages long double spaced with font 12 (Arial or Times New Roman), one inch margins. It shall cover at a minimum:

- Introduction
- A summary discussion of the main points that the author(s) addressed in the paper.
- Authors' conclusion

Proper spelling, use of clear and concise sentences and structure will be considered in the grading process.

Provide a cover sheet that complies with UTA's Thesis and Dissertation (T&D) Guidelines that can be found at: <http://www.uta.edu/library/etd/> using the **Turabian Style** ([http://www.uta.edu/library/etd/ETD%20Files/TD\\_Template\\_Instructions.pdf](http://www.uta.edu/library/etd/ETD%20Files/TD_Template_Instructions.pdf)). In addition, your last name must appear in the upper right corner and the page numbers must be centered in the bottom of each page. The paper shall follow the style guidelines as shown in UTA's Thesis Manual Style guides.

**Research Paper:** Students/assigned groups will submit a research topic in infrastructure asset management, preservation, or policy for approval by **September 23**. The research paper will cover a thorough review of a case study or the evaluation, maintenance and/or repair of an infrastructure asset as approved by the instructor. The research paper will be completed and turned in at the beginning of the class on **Dec 2** prior to the scheduled presentations.

The research paper will be between 10 to 12 pages long double spaced with font 12 (Arial or Times New Roman), one inch margins. Its format and style guidelines shall follow UTA's Thesis and Dissertation (T&D) Guidelines that can be found at: <http://www.uta.edu/library/etd/> using the **Turabian Style** ([http://www.uta.edu/library/etd/ETD%20Files/TD\\_Template\\_Instructions.pdf](http://www.uta.edu/library/etd/ETD%20Files/TD_Template_Instructions.pdf)) and shall cover at a minimum:

- Introduction
- Discussion of the case study or evaluation, maintenance and/or repair of an infrastructure asset
- Findings and conclusion
- References (minimum 10 or as approved by the instructor) and proper citations

Cover sheet, abstract/executive summary, table of content and appendices/attachments are not considered part of the total pages.

Proper spelling, use of clear and concise sentences, structure, and compliance with UTA's formatting requirements will be considered in the grading process.

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Your last name/Group Number must appear in the upper right corner and the page numbers must be centered in the bottom of each page.

**Presentation:** The presentation will provide a summary covering the findings of the research paper. All respective group members are expected to attend and take an active part in the presentation.

**Distance Learning students who are unable to attend/participate in the presentation must inform the instructor no later than the research topic approval due date to make alternate arrangements.** Failure to do so will result in no credit for the presentation.

A separate cover sheet must be included with the submission which shows each group member's name and the section of the research paper and presentation that the respective member developed. It is expected that each respective group member will provide equivalent level of contribution to the respective group's effort in the development and production of the presentation and associated research report. This is important to ensure an equitable grade distribution for this group effort.

**Use of LAPTOPS, I-pads, other electronic devices, or E-MAIL correspondence during class:** In order to minimize disruption, the use of all electronic devices will not be allowed during class. Students wishing to take notes via a laptop may do so only with prior permission from the Instructor.

**CELL PHONE use in classroom during class:** In order to minimize distractions, use of cell phones during class in the classroom is **prohibited**. Students must turn off their cell phones during class. If you are anticipating an important call, please inform the Instructor at the beginning of class and change the cell phone to "vibrate" mode. If your call comes through during class, leave the classroom quietly before beginning your conversation and return quietly as soon as the call is completed.

The Instructor reserves the right to adjust Students' grades as a result of class disruption due to cell phone or non-adherence to the above electronic device usage policy

### Useful Links:

Library Home Page.....	<a href="http://www.uta.edu/library">http://www.uta.edu/library</a>
Subject Guides .....	<a href="http://libguides.uta.edu">http://libguides.uta.edu</a>
Subject Librarians .....	<a href="http://www.uta.edu/library/help/subject-librarians.php">http://www.uta.edu/library/help/subject-librarians.php</a>
Database List.....	<a href="http://www.uta.edu/library/databases/index.php">http://www.uta.edu/library/databases/index.php</a>
Course Reserves .....	<a href="http://pulse.uta.edu/vwebv/enterCourseReserve.do">http://pulse.uta.edu/vwebv/enterCourseReserve.do</a>
Library Tutorials .....	<a href="http://www.uta.edu/library/help/tutorials.php">http://www.uta.edu/library/help/tutorials.php</a>
Connecting from Off- Campus.....	<a href="http://libguides.uta.edu/offcampus">http://libguides.uta.edu/offcampus</a>
Ask A Librarian .....	<a href="http://ask.uta.edu">http://ask.uta.edu</a>



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Class	Date		Topic	Description	Homework/Articles Review (AR) Due
	<b>Aug 25</b>		<b>Chapters</b>	<b>First Day of Classes</b>	
1	26	F-A	1	Introduction and Risk-Based Estimate (RBE)	
	26	F-B	2-3	Project risk principles and framework	
2	<b>Sept 2</b>	F-A	4-5	Approach to managing risk	
	2	F-B	4-5	Approach to managing risk	
3	9	F-A	6-7	Risk context and identification	
	9	F-B	7-8	Qualitative risk analysis and evaluation	
			<b>Census Day Sept 12</b>		
5	16	F-A	9-10	Risk treatment	<b>AR-1</b>
	16	F-B	9-10	Risk treatment	
6	23	F-A	<b>Research Topic due</b>		
	23	F-B	<b>11-12</b>	Risk monitoring and reporting	
7	30	F-A	13	Managing opportunities	
	30	F-B	14	Quantification of risk	
8	<b>Oct 7</b>	F-A	15	Quantification of risk	
	7	F-B	<b>EXAM I</b>		
9	14	F-A	16	Cost risk analysis	<b>AR-2</b>
	14	F-B	17	Schedule risk analysis	
10	21	F-A	17	Schedule risk analysis	
	21	F-B	Handout	Risk Management Plan	
11	28	F-A	Handout	Risk Management Plan	
	28	F-B	Handout	Risk Management Plan	
			<b>Last Day to Drop Nov 2</b>		
12	<b>Nov 4</b>	F-A	Handout	Other approaches to project risks	<b>AR-3</b>
	4	F-B	Handout	Risk Management checklist	
13	11	F-A	Handout	Risk Management Plan	
	11	F-B	Handout	Worksheets and examples	
14	18	F-A	Case Study	Case Study	
	18	F-B	Case Study	Case Study	
				<b>Thanksgiving Holiday Nov 26-29</b>	
15	<b>Dec 2</b>	F-A	<b>Group Paper Due</b>	Presentations	
	2	F-B		Course summary and Class Survey	
	<b>Dec 7</b>			<b>Last Day of Classes</b>	
				<b>Final Exams Week Dec 12-16</b>	
16	16	<b>F</b>	<b>Final / EXAM II</b>	<b>7:00 pm – 8:30 pm</b>	

*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – G. A. Khankarli.”*